

1. Liver and Kidney Transplantation

Liver and Kidney Transplantation

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2. Diseases of the Teeth

A Practical Treatise upon Diseases of the Teeth (1778)

- Hunter was able to successfully transplant teeth between individuals
- Unfortunately, many recipients received syphilis as well

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3. Organs from other people

Why can't we accept organs from
other people without rejection ?

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4. Self from non-self?

How do we differentiate self
from non-self ?

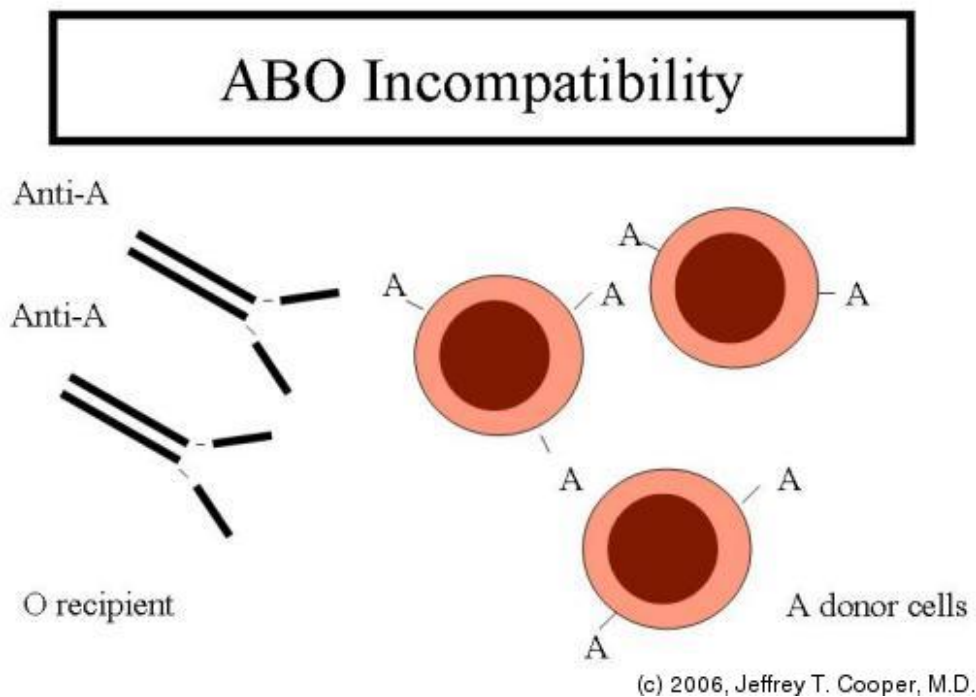
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5. Humoral or Antibody Defense

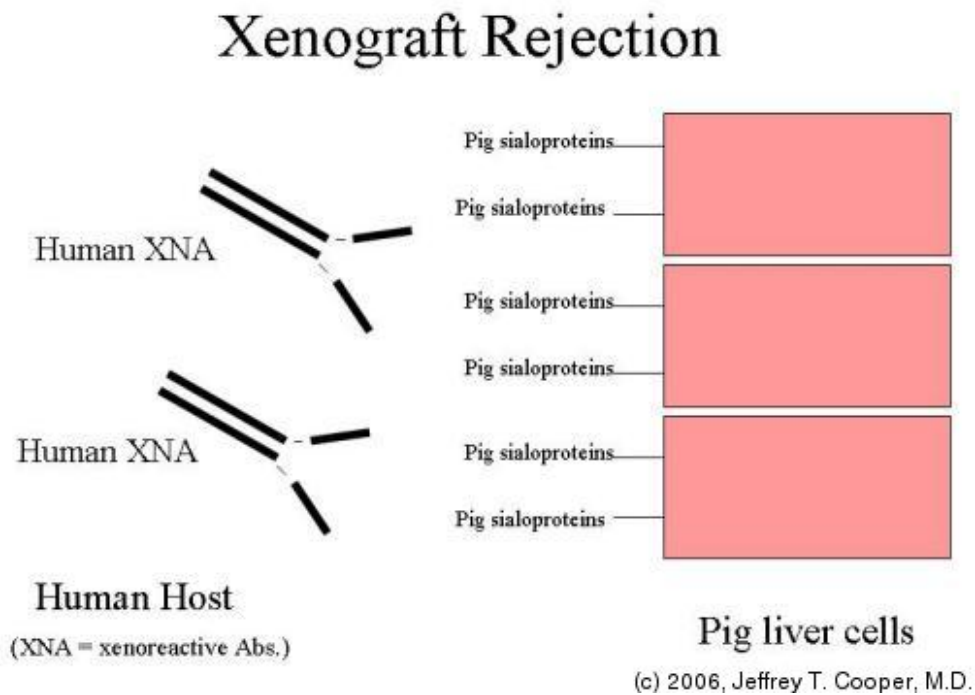
Humoral or Antibody Defense

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6. ABO Incompatibility



7. Xenograft Rejection

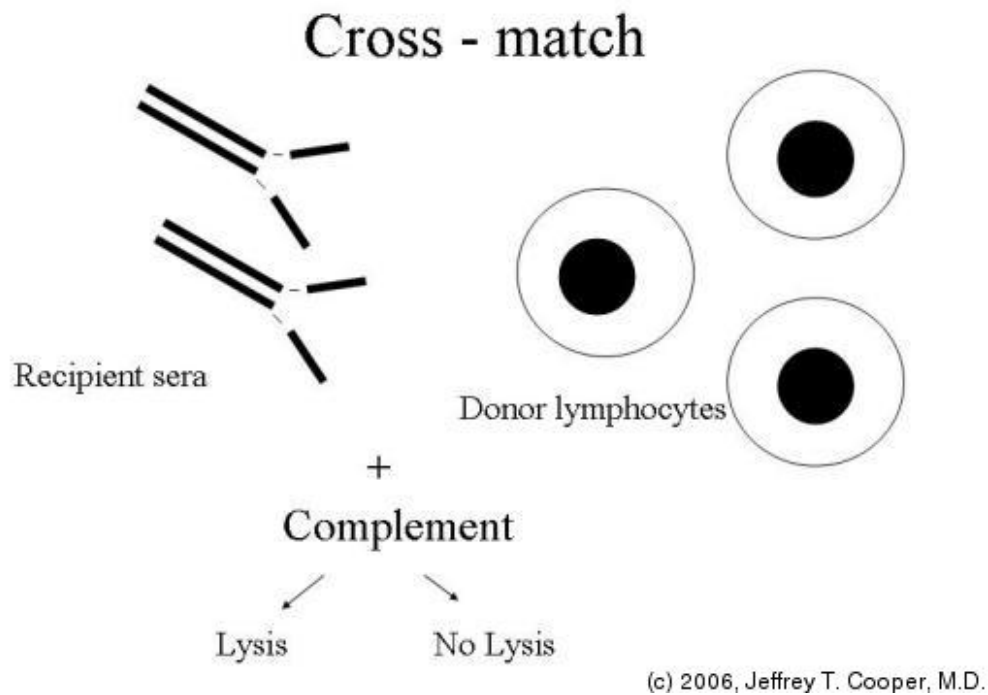


8. Pre-formed anti-bodies

How do we make sure there are
no pre-formed antibodies ?

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9. Cross-match



10. Humoral-mediated Rejection

Humoral-mediated Rejection

- If pre-existing Ab's exist → Hyperacute rejection
 - the graft is lost in minutes

- If pre-existing sensitized B cells exist → De-novo Ab creation
 - acute vascular rejection
 - occurs over 24-72 hours

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11. Cell-mediated Defenses

Cell-mediated Defenses

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12. Which cells

Which cells?

- T-cells
- Antigen presenting cells
- Natural killer cells
- Monocytes

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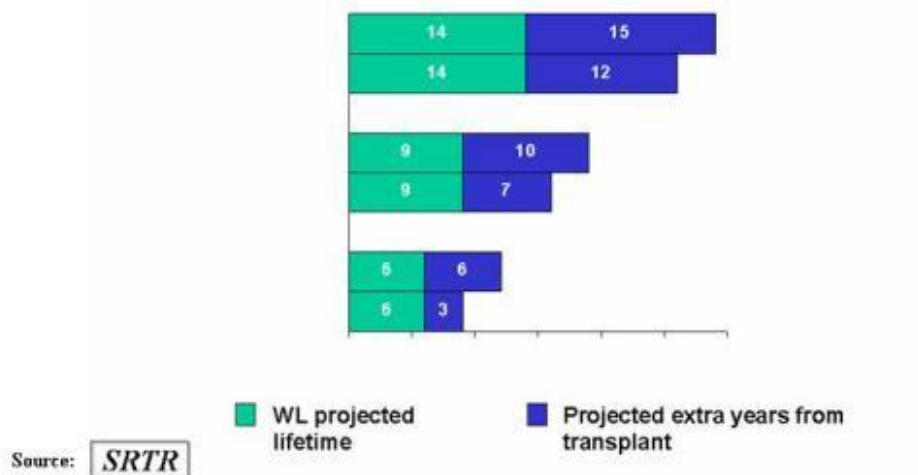
13. Why do kidney transplants

Why do kidney transplants ?

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14. Projections

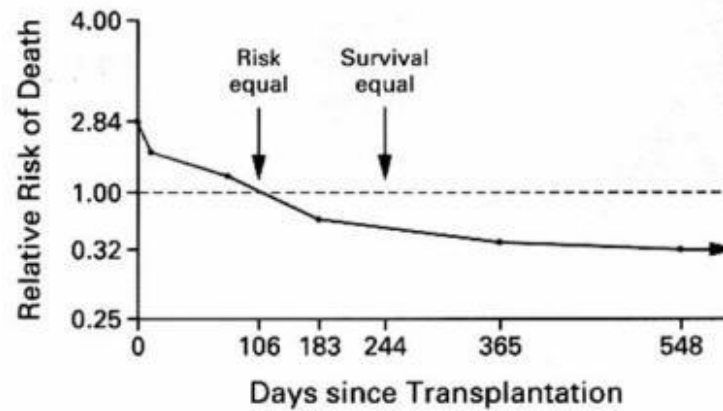
Projected lifetime on waitlist and extra lifetime after
Cadaveric kidney transplant by age, 1995 - 2001



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15.

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Wolfe, et al. NEJM, 1999

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16.

Costs

Costs

- The annual cost of hemodialysis is \$50,000
- The cost of a renal transplant is \$100,00 for the first year
- After the first year, transplant cost is about \$10,000
- Mean cumulative cost is equivalent at 4 years

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17.

Quality of Life

Quality of Life

- Studies show improved quality of life over HD
- Improvement of uremia
 - anemia
 - peripheral neuropathy
 - autonomic neuropathy
 - sexual dysfunction

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- Reported Deaths and Annual Death Rates Per 1,000 Patient Years at Risk, 1991 to 2000

Kidney Waiting List:

Year	1993	1994	1995	1996	1997	1998	1999	2000
Total Patients	35,177	38,282	41,888	45,479	49,409	53,593	57,379	61,084
Deaths	1,337	1,400	1,545	1,855	2,053	2,427	3,197	2,806
Rate	56.9	54.3	53.7	57.5	57.7	62.4	75.7	61.4

Source: www.unos.org

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19.

Waitlist Time

Time to Transplant for Waitlist Patients^{***}
Patients registered on the waitlist between 01/01/1996 and 06/30/2001

Months to Transplant *	
Percentile	U.S.
5 th	1.7
10 th	3.4
25 th	9.9
50 th (median to transplant)	34.5

Source: National Report-www.unos.org Organ: Kidney

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20.

Presented:

Presented:

put on surface of PAC where they await a T cells with receptor that recognizes a complex of that MHC molecule holding that specific peptide

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21.

Transplantation: Slide 21

To prevent a pathogen from circumventing this system for T cell activation

There exist two **independent** ways of turning on T cells:

- **Exogenous Ag:** (i.e. grass pollen)
CD4 T cell – Ag peptide – MHC class II (HLA-D)
- **Endogenous Ag:** (i.e. influenza virus)
CD8 T cell – Ag peptide – MHC class I (HLA-A, B, C)

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22.

Live donor vs. cadaveric donor

Does it matter if it is a live donor
vs. a cadaveric donor ?

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Rejection

Does it matter if you reject ?

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24.

Cellular rejection

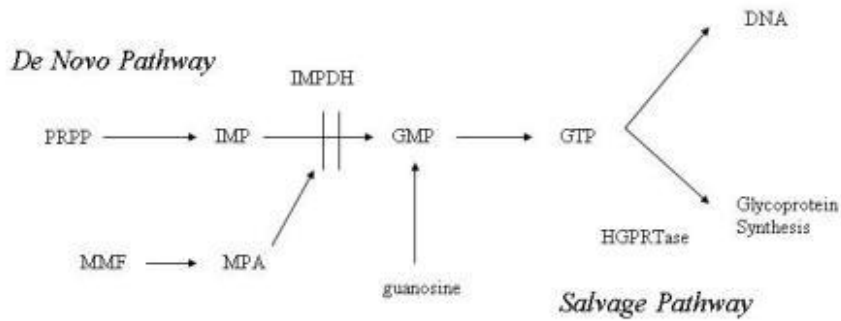
Cellular rejection is a T-cell
mediated event

- Induction agents
 - OKT3 (anti-CD3)
 - Thymoglobulin
 - simulect(anti-CD25 --→ IL-2 receptor)

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25. Mechanism of Action of MMF

Mechanism of Action of MMF



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26. Waiting List

Waiting List



Source: <http://www.unos.org>

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27. Deaths on Waiting List

Deaths on Waiting List

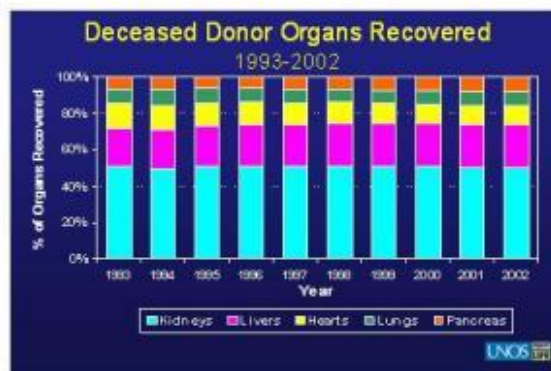


Source: <http://www.unos.org>

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28. Deceased Organ Donors Recovered

Deceased Organ Donors Recovered



Source: <http://www.unos.org>

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29.

Liver Donors Recovered

Liver Donors Recovered



Source: <http://www.unos.org>

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